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Before the
Federal Communications Commission
Washington, DC 20554

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Federal Communications Commission
Office of Secretary

In the Matter of

Amendment of Parts 2 and 95 of the Commission's Rules To Establish The Medical Data Service at 401-402 and 405-406 MHz

RM No. 11271

COMMENTS OF ZARLINK SEMICONDUCTOR INC.

Zarlink Semiconductor Inc.[1] strongly supports the Medical Data Service (MEDS) Petition for Rulemaking. Zarlink has designed one of the first medical implantable RF commercial grade transceiver chips used to link implanted medical devices with external equipment. Zarlink's ZL70100 transceiver chip set provides medical device manufacturers with a solution that is fully compliant with the emissions and spectrum protocol requirements of the MICS (Medical Implant Communication Service) band at 402-405 MHz.

Zarlink would welcome the opportunity to design a transceiver chip in compliance with the proposed Medical Data Service. The proposed requirements are based, in part, on the smart radio requirements developed for

[1] Zarlink has delivered semiconductor solutions that drive the capabilities of voice, enterprise, broadband and wireless communications for over 30 years. Information on the company's products is available at www.zarlink.com.

MICS. A ZL70100 chip set revised for MEDS could be used in body worn or implanted wireless solutions implemented by any number of medical device manufacturers.

The proposed Medical Data Service will support very useful wireless medical applications. Medical status information, such as patient vital signs, can be communicated to external monitoring equipment. Physicians also could use the service to adjust internal and external medical devices, such as insulin pumps, with improved efficiency and accuracy.

The Medical Data Service will improve medical diagnoses and treatment of critically ill patients and will help keep healthy individuals out of nursing homes and hospitals. The new service could reduce medical errors by eliminating the manual logging of patient data. Zarlink agrees that the Medical Data Service will both lower the cost of and improve the level of medical care in the U.S. and in other countries.

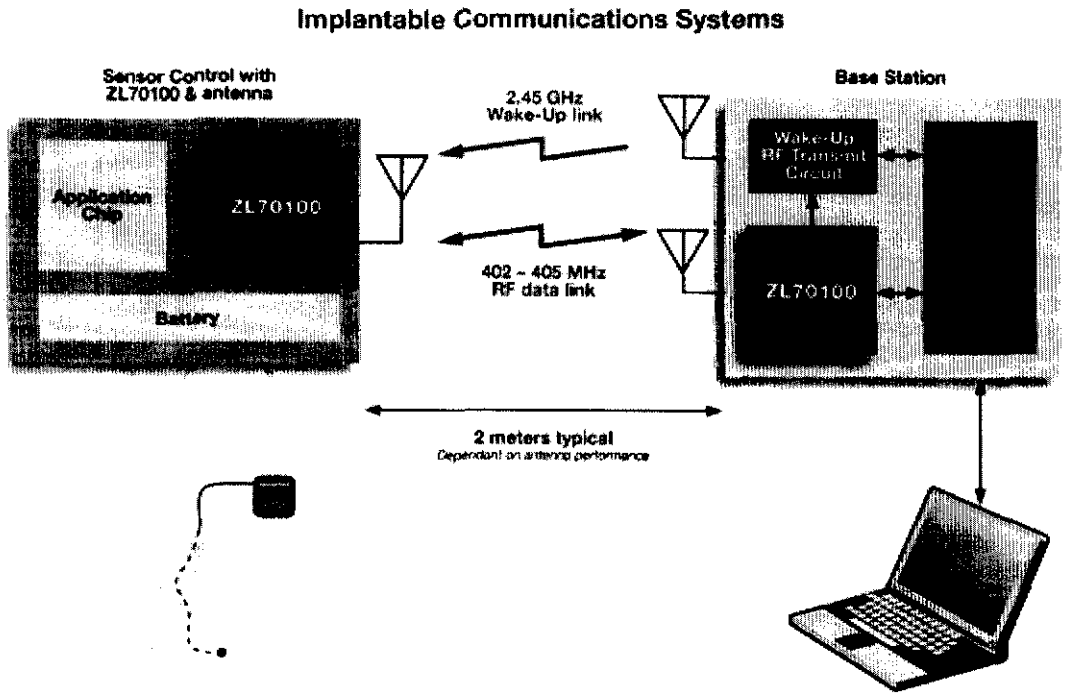

Figure 1. Medical Application with Zarlink's ZL70100 Transceiver

Zarlink's current commercial-grade MICS ZL70100 RF transceiver chip allows medical device manufacturers to design systems supporting advanced monitoring and therapy functions. Figure 1 above shows a typical short-range medical communications application. During surgery, physicians can use wireless connectivity to program an implanted device outside of the sterile surgical environment.

Physicians also can use the technology to remotely monitor patient health in between hospital visits. An ultra low-power RF transceiver in a pacemaker, defibrillator or other implanted medical device (e.g., a neurostimulator, implantable insulin pump, bladder control device, or implantable physiological monitor) can wirelessly send patient health and

device performance data to a bedside base station, which can be forwarded over the telephone or Internet to a physician's office. If a problem is detected, the patient can be advised to go to the hospital.

Prior implanted communication systems were limited by a shorter operating range and very low data transmission rates. Zarlink's ZL70100 transceiver chip is a half-duplex RF communication link that operates in accordance with the Federal Communications Commission's MICS regulations. The chip quickly transmits large amounts of patient and performance data and can support data rates up to 800 kbps for raw data and 500 kbps for usable data. The ZL70100 has an integrated Media Access Controller (MAC) for complete device control along with forward-error correction and error detection.

As noted in the Petition for Rulemaking, battery life is a critical performance parameter for implanted devices. The ZL70100 chip allows implanted devices to quickly transmit patient health and device performance data without impacting the useful battery life of the implanted device. The ZL70100 transceiver can operate in a low-current (200 nA) "sleep" mode. In the configuration shown in Figure 1, communications between implanted and base station transceivers use a specially coded "wake-up" signal from a 2.45 GHz base transmitter. Zarlink also supports alternative wake-up mechanisms using 400 MHz or direct wake-up by an IMD processor. The integrated ultra-low power wake-up RF receiver greatly extends battery life.

Further, and in accordance with the applications outlined in the Petition for Rulemaking, the ZL70100 chip set can be used for medical device

communication systems comprised of in- and on-body devices for Body Area Network applications. Because the MEDS bands are directly adjacent to MICS, Zarlink would be able to take advantage of technology advances and lessons learned from MICS development. As a result, Zarlink expects that it would be able to introduce MEDS-compliant products at lower cost and in less time.

In closing, Zarlink urges the Commission to authorize the medical operations proposed in the Petition for Rulemaking. Zarlink is eager to develop product for the Medical Data Service that will use ultra-low-power medical communications to provide improved and lower-cost medical care.

Respectfully submitted,

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